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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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ip.department.us@nxp.com

Office Action Summary	Application No. 10/555,266	Applicant(s) FUHRMANN ET AL.	
	Examiner HENRY BARON	Art Unit 2462	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 24 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

ERROR DETECTION AND SUPPRESSION IN A TDMA-BASED NETWORK NODE

Response to Arguments/Remarks

1. Claims 1 – 20 are pending in the application with claims 11 amended.
2. Examiner in view of Applicant's amendment withdraws the 35 U.S.C. 112 rejection.
3. Applicant's arguments filed 5/24/2010 have been fully considered and are not persuasive.
4. Applicant argues, in regards to claims 1 – 20 that the '805 reference fails to teach a bus driver that receives and evaluates two independent release signals to control bus operation and that the cited portions of the secondary '068 reference also fail to teach aspects of the claimed invention involving blocking access to a bus, as the cited portions are instead directed to selecting between busses. Further Applicant argues that the Office Action's assertion of "functional equivalence" is contrary to M.P.E.P. § 2144.06 because none of the cited references teaches these aspects of the claimed invention and no reasonable interpretation of the asserted prior art, taken alone or in combination, can provide correspondence.
5. Applicant argues that the '805 reference fails to disclose limitations directed to a network node, including the combination of a communication unit, a bus driver and a bus monitor in which the communication unit and bus monitor respectively independently implement an access time schedule. Moreover, the Office Action confusingly first asserts that a "diagnostic unit" is the claimed communication unit, and then later asserts that this same diagnostic unit is the bus driver.
6. Examiner is unable to determine the instance where diagnostic unit is asserted to be the bus driver.

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7. Further Applicant argues that nothing in either the Office Action or the cited references suggests that this alleged diagnostic unit implements "a communication protocol for communication with other network nodes via a communication medium".

8. Examiner replies that Belschner, as cited below, is relied on to teach of a network node and device comprising a communication unit for the implementation of a communication protocol for communication with other network nodes via a communication medium, a bus monitor, where the communication unit and the bus monitor, but does not does not disclose the event where two release signals do not coincide of blocking the access of the network node to the communication medium. Vail, as enumerated below, is relied to complement Belschner to teach this limitation. Further, Vail teaches of access of the network node via a bus driver to the communication medium as shown in figure element 24 of Figure 7.

9. The cited references. Applicant argues, fail to disclose multiple limitations including any bus driver as claimed, and the generation and use of two separate release signals (with the missing bus driver or otherwise), thus failing to contemplate the invention as a whole fails to provide any explanation whatsoever as to where any 'bus driver' is present. Applicant also argues that the assertion corresponding to the bus driver limitations in discussing independent claim 11 also fails because the cited watchdog, which examiner asserts is functionally equivalent of the bus driver, fails to perform the functions of the bus driver as claimed. Applicant argues that the watchdog does not receive two release signals; it receives one signal from the bus monitor and it is not connected to, and therefore cannot receive a signal from, a second source; therefore, because it does not receive two signals there is no way the watchdog can compare two signals.

10. Examiner replies that Belschner, as cited below, is relied on to teach of a network node and device comprising a communication unit for the implementation of a communication protocol for communication with other network nodes via a communication medium, a bus monitor, where the

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communication unit and the bus monitor, but does not does not disclose the event where two release signals do not coincide of blocking the access of the network node to the communication medium. Vail, as enumerated below, is relied to complement Belschner to teach this limitation. Further, Vail teaches of access of the network node via a bus driver to the communication medium as shown in figure element 24 of Figure 7.

11. Regarding limitations directed to a bus monitor unit and a communication unit Applicant argues that , the cited portions of the '805 reference fail to disclose these limitations as part of a central node and that both "mutually independently implement an access time schedule contained in a configuration data record." Specifically, the Office Action has asserted that the cited "diagnostic unit" and "bus monitor unit" at column two respectively correspond to the claimed "communication unit" and "bus monitor unit." Applicant argues that the Office Action asserts that the background discussion of "time-registering means" at column 2:13 corresponds to these limitations, but, this "time-registering means" at column 2 is used with "bus monitor units" that are in completely separate "distributor units" at different locations on a network, for transmission and assignment of a transmission slot to each user and is not used within a common node, by both a communication unit and bus monitor that mutually independently implement a time schedule in a configuration data record. Moreover, as the '805 reference discourages use of such an approach as described at column 2:13 as carrying "out only an impoverished level of diagnostics," the reference teaches away from using the cited time-registering means for its later-discussed bus monitor and/or diagnostic unit.

12. Examiner replies that the sections cited by the Applicant are from the background of the invention section that typically describes the problem the invention is trying to solve and should be read in this context.

13. Applicant further asserts that the proposed addition of the secondary Vail '068 reference, which discloses selecting between two available busses, fails to overcome the above-discussed deficiencies in

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the '805 reference as it fails to provide correspondence to blocking access of a network node in the event that release signals do not coincide but instead chooses a bus based upon a truth table used for determining an error in a bus enable signal, also fails to disclose any comparison as the cited truth table is based upon enable signals from "a plurality of bus controllers 32, 33," which do not correspond to the claimed invention (see column 3:25- 28) and the newly-cited portion of the '068 reference at column 5:22 and Figure 7 fails to overcome this lack of correspondence, as the cited "bus device 24" as apparently asserted as the claimed "bus driver" (in addition to the cited "bus driver" in the '085 reference) describes a separate device, which is not asserted as internal to a network node as claimed, in combination with the '085 reference or otherwise. In particular, the Applicant argues that the proposed combination of references, including the dual-link approach in the '068 reference, fails to disclose blocking access to a single communication link as claimed, as the secondary '068 reference requires that two links be present.

14. Examiner replies that the '068 Vail reference teaches in the event that the two release signals do not coincide of blocking the access of the network node via a bus driver to the communication medium. The physical links are attributed to the other references cited below i.e. Belschner teaches a network with network nodes where the network nodes communicate with each other via a single communication link that consists of the communication medium. (Figure 1 element 6).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 1, 11 – 12, and 17 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Belschner, et al (U.S. Patent 7103805), in view of Vail (U.S. Patent 6918068)

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17. With regards to claims 1, 12 and 17, Belschner teaches of a network node and device comprising a communication unit for the implementation of a communication protocol for communication with other network nodes via a communication medium a bus monitor, and a bus driver, where the communication unit and the bus monitor (2: [0046] read The bus monitor unit which is integrated into the central node is suitable for monitoring access of users to the data bus, without having to install the bus monitor unit in a decentralized controller for this purpose. The central bus monitor unit i.e. bus monitor unit and the diagnostic unit i.e. communication unit can be used to prevent faulty access to the data bus by a user) each mutually independently; 3: [0030] read [t]he central node with the integrated diagnostic unit therefore forms a closed system which preferably also has fault-handling routines, so that the central node is operationally capable independently of external diagnostic units, and has its own fault detection means i.e. mutually independent. AND 5: [0047-0048] read ... In one embodiment, for example, a bus driver can either transmit or receive at one time. (That is, only the transmitter or the receiver in a driver can ever be connected through to the data bus.) The activation of the transmission/reception switches can be carried out in the user itself on the basis of signal activity on the bus line...) each implement an access time schedule contained in a configuration data record (2: [0013] read For this purpose, a time-registering means i.e. access time schedule is provided which registers the time patterns of the data bus for the transmission of a user i.e. configuration data record and, triggered by these time patterns, assigns a transmission slot to each user.) and each make available, in accordance with the access time schedule, a release signal for the bus driver the bus driver evaluates these two release signals (3: [0013] read Based on the second time pattern made available to it, the diagnostic unit checks whether the bus monitor unit regularly retriggers in response to the time patterns by means of the trigger signals i.e. evaluates these two release signals).

18. However Belschner does not disclose in the event that the two release signals do not coincide of blocking the access of the network node via a bus driver to the communication medium.

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19. Vail teaches this limitation (4: [0052] read . For example, the following truth table may be used to determine which communications bus 21, 22 should be selected, as will be readily appreciated by those skilled in the art. (1) BE3 BE2 BE1 Select Comments 0 0 0 R Bad BE3 0 0 1 P Bad BE2 0 1 0 P Bad BE1 0 1 1 i.e. two release signals do not coincide of blocking the access of the network node to the communication medium P Normal case: P Selected, BE1-3 are all working 1 0 0 R Normal case: R Selected, BE1-3 are all working 1 0 1 R Bad BE1 1 1 0 R Bad BE2 1 1 1 P Bad BE3 In the above table, BE1= bus enable signal 1; BE2= bus enable signal 2; BE3= bus enable signal 3; R= redundant communications bus; P= primary communications bus; BE1 and BE2 are from primary controller 32; and BE3 is from the redundant bus controller 33.)

20. Vail teaches of access of the network node via a bus driver to the communication medium. (5: [0022] read Referring now to FIG. 7, another embodiment of the bus device 24' i.e. bus driver is now described.)

21. Vail teaches this limitation via a redundant bus system, whereby depending on the bus enable signals; communication is either made on the primary or redundant communications bus. Examiner interprets the enablement of communications on the redundant communications bus as logically equivalent to inhibiting communication on the primary communications bus. Thus, “in the event that the two release signals do not coincide of blocking the access of the network node to the communication medium” is taught because the communication system will utilize the redundant communications bus instead of the primary communication bus (inhibiting communication on the primary communication bus). The selection of the redundant communications bus is functionally equivalent to “blocking access of the network node to the communication medium” because the system does not utilize the primary communication.

22. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the bus access teachings of Belschner with the comparison circuit teachings of Vail.

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23. In this manner, access to data bus can be regulated in a discipline manner so as to mitigate user collisions on the data bus or erroneously transmitting data when a single spurious enable signal is set.

24. In regards to claim 11, Belschner teaches of a bus driver for a network node which is provided for communication with other network nodes via a communication medium and a bus driver that evaluates two mutually independent release signals that implement an access time schedule to generate the release signals. (2: [0046] read the bus monitor unit which is integrated into the central node is suitable for monitoring access of users to the data bus, without having to install the bus monitor unit in a decentralized controller for this purpose. The central bus monitor unit i.e. bus monitor unit and the diagnostic unit i.e. communication unit can be used to prevent faulty access to the data bus by a user) each mutually independently; (5: [0006] read [t]he watchdog i.e. bus driver, monitors the cyclical synchronization of the bus monitor unit with the time patterns of the data bus i.e. evaluates two release signals for equality of the release information made available to it by two separate units for a communication medium, and switches the bus monitor unit to an inactive state when the trigger signal fails to occur, blocking or releasing the communication in a way which can be configured for all the users i.e. in the event that the release signals do not coincide, the bus driver blocks the access of the network node. And 3: [0030] read [t]he central node with the integrated diagnostic unit therefore forms a closed system which preferably also has fault-handling routines, so that the central node is operationally capable independently of external diagnostic units, and has its own fault detection means i.e. mutually independent.); and 2: [0013] read For this purpose, a time-registering means i.e. access time schedule is provided which registers the time patterns of the data bus for the transmission of a user i.e. configuration data record and, triggered by these time patterns, assigns a transmission slot to each user.) and each make available, in accordance with the access time schedule, a release signal for the bus driver the bus driver evaluates these two release signals and 3: [0013] read based on the second time pattern made available to

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it, the diagnostic unit checks whether the bus monitor unit regularly retriggers in response to the time patterns by means of the trigger signals i.e. evaluates these two release signals)

25. However, Belschner does not disclose where the bus driver evaluates two release signals for equality of the release information made available to it by two separate units.

26. Vail teaches this limitation (4: [0052] read. For example, the following truth table may be used to determine which communications bus 21, 22 should be selected, as will be readily appreciated by those skilled in the art. (1) BE3 BE2 BE1 Select Comments 0 0 0 R Bad BE3 0 0 1 P Bad BE2 0 1 0 P Bad BE1 0 1 1 i.e. two release signals do not coincide of blocking the access of the network node to the communication medium P Normal case: P Selected, BE1-3 are all working 1 0 0 R Normal case: R Selected, BE1-3 are all working 1 0 1 R Bad BE1 1 1 0 R Bad BE2 1 1 1 P Bad BE3 In the above table, BE1= bus enable signal 1; BE2= bus enable signal 2; BE3= bus enable signal 3; R= redundant communications bus; P= primary communications bus; BE1 and BE2 are from primary controller 32; and BE3 is from the redundant bus controller.)

27. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the bus access teachings of Belschner with the comparison circuit teachings of Vail.

28. In this manner, access to data bus can be regulated in a discipline manner so as to mitigate user collisions on the data bus or erroneously transmitting data when a single spurious enable signal is set.

29. Claims 3 – 10, 13, 15 – 16 and 18 – 20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Belschner, et al (U.S. Patent 7103805), in view of in view of Vail (U.S. Patent 6918068) and in further view of Riley et al (U.S. Patent 5706289).

30. With regards to claims 3, 15, and 19, Belschner, modified teaches of a network node as claimed in claim 1, characterized in that the release signals of the communication unit and the bus monitor, but does not teach that the signals are coded inversely to one another.

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31. The polarities of signals in VLSI are determined by the physical design, timing and performance specification of the logic as shown in, for example, in Riley Figure 13 element 445 and 446.

32. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Belschner, modified Riley so that release signals are coded inversely to one another if the design so dictated.

33. In this manner, the time slot of bus could be blocked or not in the most expedient manner per a specific set of physical specifications.

34. In regards to claims 4 – 5, 16, and 20, Belschner modified, teach a network node characterized in that the evaluation of the two release signals is undertaken in the bus driver, but does not teach the of the influence of a low-pass filter or of a low-pass filter of configurable design.

35. Riley teaches of the evaluation of the two signals is undertaken in the bus driver with the influence of a low-pass filter or of a low-pass filter of configurable design. (8: [0024] read shown in block form in FIG. 2A, the channel input signal at the channel A input terminal to the integrated circuit is fed through a dual signal conditioning circuit before further processing. The signal conditioning circuit includes a Channel A signal conditioning circuit (shown in FIG. 3A) i.e. configurable low-pass filter. As shown in FIG. 3A, the signal conditioning circuit 122 has an anti-aliasing filter, a hysteresis circuit, and a digital low pass filter.)

36. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Belschner, modified Riley to condition the input release signal with a configurable low pass filter.⁶

37. In this manner, noise or channel transients can be mitigated thus improving the fidelity of the protection time slot logic for the bus.

38. In regards to claims 6 and 7, Belschner teaches that error-state detection generated in the bus driver is resettable from the outside and can be signaled to the outside. (4: [0056] read [t]he bus monitor

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unit is connected via an interface to a communications computer of the central node, which loads and calculates the time patterns i.e. access time schedule contained in a configuration data record, for the accepted transmission slots of the individual users i.e. communication nodes. The interface is a component of the configuration means).

39. Regarding claim 8, Belschner teaches that the bus monitor and the bus driver are integrated into one unit. (2: [0045] read the bus monitor unit is integrated into the central node is suitable for monitoring access of users to the data bus, without having to install the bus monitor unit in a decentralized controller for this purpose.).

40. In consideration of claim 9, Belschner teaches a network with network nodes where the network nodes communicate with each other via a single communication link that consists of the communication medium. (Figure 1 element 6).

41. With regards to claim 10, Belschner teaches where redundant network channels are provided, wherein a bus monitor and a bus driver are assigned to each network channel in each network node (7: [0004] read FIG. 3 shows an example of a time pattern such as can be determined by the unit for setting the configuration parameters 21. First, two time slots are provided for the user 7, followed by a time slot for the third user 9. The two time slots which are represented in a hatched form are marked as blocked by the hatching, i.e. the bus monitor unit 5 has detected a faulty transmission signal at this time; as a result, the time slot is blocked both for transmission and reception. However, on the other hand, it would also be possible for signal filtering to take place so that the correct signal is generated by means of a filter or a redundant channel.).

42. In regards to claim 13 and 18, Belschner modified teaches the limitations of claim 12, but does not disclose where the bus driver evaluates the independently-generated release signals to ensure that both signals match one another to mitigate a network access condition resulting from an improperly-generated release signal.

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43. Riley teaches where the bus driver evaluates the independently-generated release signals to ensure that both signals match one another to mitigate a network access condition resulting from an improperly-generated release signal. (6: [0061] read in mode one, during the first part of the time slot 65, data is placed on the data bus 46 by one or more input data link modules 32 and the data remains on the data bus 46 for the entire time slot i.e. both signals match one another. At the midpoint 64 of the time slot 65, the data on the data bus 46 is copied from the bus to output terminals 98 and 100 on at least one output data link module 32 for use by at least one output device 54. i.e. to mitigate a network access condition resulting from an improperly-generated release signal)

44. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Belschner, modified Riley so that release signals are properly matched.

45. In this manner, the time slot of bus could be blocked and an improperly-generated release signal can be mitigated

46. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belschner, et al (U.S. Patent 7103805), in view of in view of Vail (U.S. Patent 5528168) and in further view of Baek et al (U.S. Patent 5680554).

47. In consideration of claims 2 and 14, Belschner, modified Riley teaches of a bus driver activating the transmission stage if there is no blockage of access to the communication medium present, but does not teach of transmission request signal to the bus driver.

48. Baek teaches of transmission request signal to the bus driver (4: [0054] read NRQ represents the basic unit of a data transmission request signal...)

49. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Belschner, modified Riley with Baek.

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50. In this manner, the bus driver will be enabled only when it has data to transmit thus minimizing collision with other bus drivers.

FINAL ACTION

51. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

52. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

53. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY BARON whose telephone number is (571)270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

54. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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55. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information on for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./
Examiner, Art Unit 2462

HB

/Kevin C. Harper/

Primary Examiner, Art Unit 2462